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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

BRINEY III, WALTER F

ART UNIT PAPER NUMBER

2615

DATE MAILED: 04/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/749,133

Applicant(s)

PREVES ET AL.

Examiner

Walter F. Briney III

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10, 12, 14 and 16-34 is/are rejected.
- 7) ☒ Claim(s) 8, 9, 11, 13 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. **Claims 19-24, 26 and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by LaFollette et al. (US Patent 6,610,440).**

Claim 19 is limited to “a battery.” LaFollette discloses microscopic batteries for MEMS systems. See Abstract. As seen in, for example, figure 10 a battery includes a plurality of micro cells that corresponds to “a plurality of battery regions” disposed on a silicon substrate, such as the substrate 32 seen in figure 6. The cross-section of figure 6 depicts polyimide spacers 38’ (i.e. buffer regions) that separate each electrolyte/micro cell (i.e. battery region). Both figure 6 and figure 10 illustrate a plurality of electrodes that serve as “a plurality of voltage taps.” As seen in figure 10, each cell has a tap. See column 25, line 20, through column 26, line 36. Therefore, LaFollette anticipates all limitations of the claim.

Claim 20 is limited to "the battery of claim 19," as covered by LaFollette. LaFollette discloses that the substrate 32 is "rigid." See column 13, lines 9-35. Therefore, LaFollette anticipates all limitations of the claim.

Claim 21 is limited to "the battery of claim 19," as covered by LaFollette. LaFollette discloses that the substrate is "flexible" and spirally-wound (i.e. "folded"). See column 13, lines 9-35, and figure 16. Therefore, LaFollette anticipates all limitations of the claim.

Claim 22 is limited to "the battery of claim 19," as covered by LaFollette. LaFollette discloses that the substrate is "flexible" and spirally-wound (i.e. "rolled"). See column 13, lines 9-35, and figure 16. Therefore, LaFollette anticipates all limitations of the claim.

Claim 23 is limited to "the battery of claim 19," as covered by LaFollette. LaFollette depicts at least three battery regions in figure 10. Therefore, LaFollette anticipates all limitations of the claim.

Claim 24 is limited to "the battery of claim 19," as covered by LaFollette. The voltages provided by the micro cells depicted in figure 10 of LaFollette are approximately 1.3V, 2.6V and 3.8V. Therefore, LaFollette anticipates all limitations of the claim.

Claim 26 is limited to "the battery of claim 19," as covered by LaFollette. Figure 10 of LaFollette clearly depicts that each battery region has its own "reference contact." Therefore, LaFollette anticipates all limitations of the claim.

Claim 27 is limited to "the battery of claim 19," as covered by LaFollette.

LaFollette disclose that each micro cell is "rechargeable." See column 15, lines 29-38.

Therefore, LaFollette anticipates all limitations of the claim.

2. **Claims 19, 21 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Cohen et al. (US patent 4,204,036).**

Claim 19 is limited to "a battery." Cohen discloses "a substrate" (lower end of 24), "a plurality of battery regions" including cathodes 31 and anodes 32; "a plurality of buffer regions" 15; and "a plurality of voltage taps" 25, 28 and the upper end of 24.

Therefore, Cohen anticipates all limitations of the claim.

Claim 21 is limited to "the battery of claim 19," as covered by Cohen. Figure 5 clearly depicts that metal substrate 24 is flexible and folded about the battery regions. Therefore, Cohen anticipates all limitations of the claim.

Claim 25 is limited to "the battery of claim 19," as covered by Cohen. Cohen discloses a reference contact 6 that is common to all battery regions. Therefore, Cohen anticipates all limitations of the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1-7, 10 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Penn (US Patent 2,140,969) in view of Cohen et al. (US Patent 4,204,036).**

Claim 1 is limited to “a system.” Penn discloses a hearing aid apparatus that corresponds to the recited “system.” In the embodiment of figure 2 a plurality of “electronic devices” including devices 10, 12, 12a and 13 receive “different supply voltages” provided by batteries 15, 19, 20, 24 and others not specifically labeled. Figure 2 clearly depicts that a respective battery provides each different supply voltage instead of “a single supply source having multiple voltage taps to provide the different supply voltages.” However, this deficiency is overcome by an obvious modification.

In particular, Cohen teaches a multiple duty battery that, as described in the Abstract, provides different voltages by providing electrical access to intermediate cells within the battery by conductive metal terminal layers. These layers correspond to the “multiple voltage taps” recited. Clearly, a single battery with a plurality of voltage providing cells generates a plurality of voltages without “up-converting” or “down-converting.” Cohen further teaches that the multiple duty battery is advantageous in replacing multiple single duty batteries for use in a portable device, e.g. a hearing aid. See column 1, lines 4-50.

It would have been obvious to one of ordinary skill in the art at the time of the invention to replace multiple batteries of a hearing aid with a single multiple duty battery as taught by Cohen for the purpose of simplifying the construction and reducing the size of the hearing aid.

Claim 2 is limited to “the system of claim 1,” as covered by Penn in view of Cohen. As shown apropos the rejection of claim 1, Cohen teaches a multiple duty

“battery” with conductive metal terminals (i.e. “multiple voltage taps”). These terminals are depicted, for example, in figure 5 as elements 24, 25 and 28. See column 4, line 12, through column 5, line 45. Therefore, Penn in view of Cohen makes obvious all limitations of the claim.

Claim 3 is limited to “the system of claim 2,” as covered by Penn in view of Cohen. Figure 5 depicts a plurality of “battery regions” that each include a cathode 31 and an anode 32. The “battery regions” are stacked on a “common substrate” corresponds to element 30. Alternatively, the “common substrate” corresponds to element 25. Therefore, Penn in view of Cohen makes obvious all limitations of the claim.

Claim 4 is limited to “the system of claim 3,” as covered by Penn in view of Cohen. In the initial sense indicated apropos the rejection of claim 3, the “common substrate” corresponds to element 30, a plastic current collector that is “rigidly” fixed in the planar configuration seen in figure 5. Therefore, Penn in view of Cohen makes obvious all limitations of the claim.

Claim 5 is limited to “the system of claim 3,” as covered by Penn in view of Cohen. In the alternative sense indicated apropos the rejection of claim 3, the “common substrate” corresponds to element 25, a flexible piece of steel “folded” into the configuration seen in figure 5. Therefore, Penn in view of Cohen makes obvious all limitations of the claim.

Claim 6 is limited to “the system of claim 3,” as covered by Penn in view of Cohen. In the alternative sense indicated apropos the rejection of claim 3, the “common

substrate” corresponds to element 25, a flexible piece of steel “rolled” over frame 34 in the manner seen in figure 5. Therefore, Penn in view of Cohen makes obvious all limitations of the claim.

Claim 7 is limited to “the system of claim 3,” as covered by Penn in view of Cohen. As shown apropos the rejection of claim 1, Penn discloses a “hearing aid.” See column 1, lines 1-5. Therefore, Penn in view of Cohen makes obvious all limitations of the claim.

Claim 10 is limited to “the system of claim 7,” as covered by Penn in view of Cohen. Note that figure 3 of Penn illustrates batteries with one, two, three and four cells. Therefore, figure 3 of Penn clearly illustrates the need for at least four different voltages. As a result, it would have been obvious to one of ordinary skill in the art at the time of the invention to design the battery of Cohen to provide four voltages, necessitating four taps and four regions, for the purpose of meeting the voltage requirements of Penn.

Claim 16 is limited to “the system of claim 7,” as covered by Penn in view of Cohen. The hearing aid of Penn clearly includes “a microphone” 10, “a signal processor” including elements 12, 17 and 18 and “an amplifier” 12a. As seen in figure 3 of Penn, each element listed above receives a different voltage, such that the different voltage taps of the battery taught by Cohen will power each different element. Therefore, Penn in view of Cohen makes obvious all limitations of the claim.

4. **Claims 12, 14, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Penn in view of Cohen and further in view of Saaski et al. (US Patent 6,310,960).**

Claim 12 is limited to "the system of claim 7," as covered by Penn in view of Cohen. Penn is silent regarding "a battery recharge control." However, this deficiency is overcome by an obvious modification.

In particular, Saaski teaches a rechargeable hearing aid system as stated in the Abstract. The Abstract indicates that the recharging circuit is applicable to batteries with multiple cells, such as the one taught by Cohen. The battery recharge control of Saaski is depicted in figures 5 and 6. See column 14, line 18, through column 16, line 8.

It would have been obvious to one of ordinary skill in the art at the time of the invention to (1) design the battery of Cohen to be rechargeable and (2) provide a battery recharge control as taught by Saaski for the purpose of overcoming problems inherent in using disposable batteries. See Saaski column 1, line 63, through column 2, line 36.

Claim 14 is limited to "the system of claim 12," as covered by Penn in view of Cohen and further in view of Saaski. Penn discloses a voltage regulator that provides a design charging voltage in column 16, lines 3-8. The circuitry (not shown) that provides this function corresponds to "a number of voltage regulators" as recited, wherein the number is one. Therefore, Penn in view of Cohen makes obvious all limitations of the claim.

Claim 17 is limited to "the system of claim 7," as covered by Penn in view of Cohen. Penn is silent regarding "one or more regulators." However, this deficiency is overcome by an obvious modification.

Saaski teaches regulating one battery voltage in figure 7. See column 16, lines 30-50. The regulator functions to maintain a constant DC voltage output regardless of the amount of power discharged by the battery.

It would have been obvious to one of ordinary skill in the art at the time of the invention to regulate the output of at least one battery voltage provided by one tap of a battery as taught by Saaski for the purpose of maintaining a constant DC voltage regardless of the amount of power discharged by the battery.

Claim 18 is limited to "the system of claim 7," as covered by Penn in view of Cohen. The recharging circuit of Saaski mentioned apropos the rejection of claim 12 operates at a voltage of about 3-8 volts. See column 15, lines 6-7.

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the recharging circuit as taught by Saaski for the same reasons apropos the rejection of claim 12.

5. **Claims 28-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Penn in view of Cohen and further in view of Panitzsch (US Patent Application Publication 2002/0043709).**

Claim 28 is limited to "a method of manufacturing a hearing aid." It was shown apropos the rejection of claim 7 that it is obvious to provide electronic devices configured to operate under a different supply voltage and a single supply source to provide said supply voltages without up-converting or down-converting a voltage. However, Penn, which is directed towards a hearing aid, is silent regarding the absolutely necessary process of hearing aid manufacture. Therefore, Penn in view of

Cohen fail to make obvious "mounting a number of electronic devices into a housing of a hearing aid." However, this deficiency is overcome by an obvious modification.

As noted in the previous paragraph, Penn fails to specify a method of hearing aid manufacture. Furthermore, Penn fails to even specify a particular housing for the hearing aid disclosed therein. These deficiencies may be simply overcome by choosing any suitable hearing aid housing and manufacturing method. In this way, the hearing aid taught by Panitzsch provides a housing 1 that retains a plurality of electronic circuits 7, 11, 12 and a single power supply 10.

It would have been obvious to construct a hearing aid in the manner taught by Panitzsch simply because Penn fails to even describe a method of manufacture, which, of course, is absolutely essential to practicing the invention of Penn.

Claims 29-33 are directed towards essentially the same subject matter as claims 2-6, and are rejected for the same reasons.

6. **Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Penn in view of Cohen in view of Panitzsch and further in view of Saaski.**

Claim 34 is limited to "the method of claim 29," as covered by Penn in view of Cohen and further in view of Panitzsch. The recharging circuit of Saaski mentioned apropos the rejection of claim 12 operates at a voltage of about 3-8 volts. See column 15, lines 6-7.

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the recharging circuit as taught by Saaski for the same reasons apropos the rejection of claim 12.

Allowable Subject Matter

The following is a statement of reasons for the indication of allowable subject matter:

7. **Claims 8, 9, 11, 13 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.**

Claim 8 is limited to “the system of claim 7,” as covered by Penn in view of Cohen. Penn is silent regarding “a battery management unit” as recited. While battery management, particularly in hearing aids is notoriously well known—for example, Saaski teaches battery management circuitry 22 in column 16, lines 9-17—there is no teaching to provide battery management circuitry to monitor the voltage level of each battery region. Thus, claim 8 is allowable over the cited prior art.

Claim 9 is limited to “the system of claim 8,” and therefore, is allowable over the cited prior art for at least the same reasons.

Claim 11 is limited to “the system of claim 7,” as covered by Penn in view of Cohen. Penn is silent regarding the specific voltage requirements of the hearing aid depicted in figure 3. Therefore, Penn in view of Cohen fails to make obvious a battery including a 1.3V tap, a 2.6V tap and a 3.8V tap.

The applicant clearly indicates in the specification that the above voltages are useful in hearing aid circuits as they correspond to the voltages traditionally used throughout the art. See page 1, lines 4-17. While these voltages are well known, they are known in transistor hearing aids, not vacuum tube hearing aids. Thus, there is no

suggestion to provide such voltages in the hearing aid of Penn and claim 11 is allowable over the cited prior art.

Claim 13 is limited to "the system of claim 12," as covered by Penn in view of Cohen. As noted apropos the rejection of claim 12, battery recharging is an obvious expedient in the hearing aid art. However, there is no suggestion to provide independent recharging of each battery region. Thus, claim 13 is allowable over the cited prior art.

Claim 15 is limited to "the system of claim 7," as covered by Penn in view of Cohen. Penn is silent regarding a switching arrangement to connect an electronic device to any voltage tap of the multiple voltage taps. Furthermore, there is no suggestion to provide this limitation. Although it is known to disconnect a battery voltage from a load, perhaps to reduce power consumption, there is no suggestion to provide a switching network in a hearing aid for disconnection from any tap of the multiple voltage taps recited. Thus, claim 15 is allowable over the cited prior art.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter F. Briney III whose telephone number is 571-272-7513. The examiner can normally be reached on M-F 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WFB



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SUPERVISORY PATENT EXAMINER